

Claims

1. Slide bearing composite material (2) comprising a metallic support layer (4), a metallic porous carrier layer (6) sintered or sprayed thereon and having a thickness of between 100 and 500 μm , in particular between 200 and 330 μm , and a sliding layer (10), forming the sliding surface for a sliding partner and made from a sliding layer material (8) on the basis of a polymer, which also fills the pores of the carrier layer (6) and with fillers which improve the tribological properties, wherein the porous carrier layer (6) is formed from spattered particles having a continuously irregular, non-circular geometry and has a pore volume of at least 40 - 48 vol. % prior to bending or rolling into a shell or bushing shape, wherein the sliding layer material projects past the porous carrier layer by 5-100 μm , is lead-free, and comprises at least 50 volume % PVDF or at least 60 volume % PA, PES, or PPS.
2. Slide bearing composite material according to claim 1, characterized in that the grain size distribution of the metallic particles has a characteristic grain size of 75 to 110 μm .
3. Slide bearing composite material according to claim 1 or 2, characterized in that the grain size distribution of the metallic particles is characterized by a shape parameter β of 2.5 to 5.
4. Slide bearing composite material according to claim 1, 2 or 3, characterized in that the wall thickness increase of the sliding layer during bending of the sliding layer material into a shell or bushing shape satisfies the relationship

$$a = b \cdot e^{\frac{cS_3}{d_2}}$$

with $0.0035 < b < 0.0045$ and $9.2 < c < 9.7$, in particular with $0.0038 < b < 0.0042$ and $9.4 < c < 9.5$, wherein S_3 is the wall thickness of the slide bearing composite material and d_2 is the outer diameter of the bushing or shell shape.

5. Sliding layer composite material according to any one or more of the preceding claims, characterized in that the porous carrier layer (6) has a pore volume of at least 41 %, in particular of at least 42 %, in particular of at least 43 %, in particular of at least 44 % and moreover preferentially at least 45 %.
6. Slide bearing composite material according to claim 5, characterized in that the porous carrier layer (6) has a pore volume of 43 to 48 %.
7. Slide bearing composite material according to one or more of the preceding claims, characterized in that the sliding layer material (8) contains no lead.
8. Slide bearing composite material according to one or more of the preceding claims, characterized in that the sliding layer material (8) comprises at least 50 vol. % of PVDF.
9. Slide bearing composite material according to claim 8, characterized in that the sliding layer material (8) comprises at least 60 vol. % of PVDF.
10. Slide bearing composite material according to one or more of the preceding claims, characterized in that the sliding layer material (8) comprises at least 60 vol. % of PA.

11. Slide bearing composite material according to one or more of the preceding claims, characterized in that the sliding layer material (8) comprises at least 60 vol. % of PES.
12. Slide bearing composite material according to one or more of the preceding claims, characterized in that the sliding layer material (8) comprises at least 60 vol. % of PPS.
13. Slide bearing composite material according to one or more of the preceding claims, characterized in that the sliding layer material (8) comprises at least 5, in particular, at least 8 vol. % and moreover at least 10 vol. % of PTFE.
14. Slide bearing composite material according to claim 13, characterized in that the sliding layer material (8) is based on PTFE, in particular comprises at least 60 vol. % of PTFE, in particular, at least 70 vol. % of PTFE.
15. Slide bearing composite material according to one or more of the preceding claims, characterized in that the sliding layer material (8) comprises at least 5 vol. %, in particular, at least 8 vol. % and moreover in particular 8 to 12 vol. % of zinc sulphide and/or barium sulphate.
16. Slide bearing composite material according to one or more of the preceding claims, characterized in that the sliding layer material (8) comprises at least 5 vol. %, in particular, at least 8 vol. % and moreover in particular 8 to 12 vol. % of graphite.
17. Slide bearing composite material according to one or more of the preceding claims, characterized in that the sliding layer material (8)

comprises at least 2 vol. %, and in particular 2 to 6 vol. %, of carbon fibers.

18. Slide bearing composite material according to one or more of the preceding claims, characterized in that the porous carrier layer (6) is formed from tin bronze particles, in particular of CuSn (8-12) particles.
19. Slide bearing composite material according to one or more of the preceding claims, characterized in that the support layer (4) consists of steel or bronze.
20. Slide bearing bushing, produced from a slide bearing composite material according to one or more of the preceding claims.
21. Slide bearing bushing according to claim 20, having an outer diameter of 10 to 15 mm, in particular 10 to 13 mm, and wherein the sliding layer material projects past the porous carrier layer by 10 to 30 μm , in particular 10 to 25 μm , and moreover in particular 12 to 20 μm , wherein the sliding layer material completely covers the porous carrier layer.